

IN THE CLAIMS:

Claims 5 and 22 were previously canceled. Claims 23 and 27 have been amended herein. All of the pending claims are presented below. This listing of claims will replace all prior versions and listings of claims in the application. Please enter these claims as amended.

1. (Previously presented) A polycrystalline diamond abrasive element, comprising a polycrystalline diamond layer bonded to a substrate along an interface, the polycrystalline diamond layer having a working surface opposite the interface and an outer peripheral surface extending between the working surface and the interface, the polycrystalline diamond layer consisting of a region rich in catalyzing material and a region lean in catalyzing material, the region lean in catalyzing material including an annular portion adjacent to and extending along the peripheral surface away from the working surface toward but stopping short of the interface at a boundary of the region rich in catalyzing material, the annular portion being bounded between a portion of the region rich in catalyzing material and the peripheral surface.
2. (Previously presented) The polycrystalline diamond abrasive element according to claim 1, wherein the region of the polycrystalline diamond layer lean in catalyzing material further includes a portion adjacent the working surface.
3. (Previously presented) The polycrystalline diamond abrasive element according to claim 1, wherein the annular portion of the region lean in catalyzing material extends into the polycrystalline diamond layer from the peripheral surface to a depth of about 30 μ m to about 500 μ m.
4. (Previously presented) The polycrystalline diamond abrasive element according to claim 1, wherein the annular portion of the region lean in catalyzing material extends from the working surface toward the interface to a depth of at least half the overall thickness of the polycrystalline diamond layer, but stops short of the interface by at least about 500 μ m.

5. (Canceled)

6. (Previously presented) The polycrystalline diamond abrasive element according to claim 1, wherein the catalyzing material is present as a sintering agent in the manufacture of the polycrystalline diamond layer.

7. (Previously presented) The polycrystalline diamond abrasive element according to claim 1, wherein the region rich in catalyzing material itself comprises a plurality of layers, which layers differ in average particle size or chemical composition.

8. (Previously presented) The polycrystalline diamond abrasive element according to claim 1, wherein the polycrystalline diamond abrasive element is a cutting element.

9. (Previously presented) The polycrystalline diamond abrasive element according to claim 1, wherein the polycrystalline diamond layer comprises a bevel at a peripheral edge of the working surface.

10. (Previously presented) The polycrystalline diamond abrasive element according to claim 1, wherein the substrate is a cemented carbide substrate.

11. (Previously presented) A polycrystalline diamond abrasive element, comprising a polycrystalline diamond layer bonded to a substrate along an interface, the polycrystalline diamond layer having a working surface opposite the interface and an outer peripheral surface extending between the working surface and the interface, the polycrystalline diamond layer consisting of a region rich in catalyzing material and a region lean in catalyzing material, the region lean in catalyzing material having a substantially annular portion adjacent the peripheral surface, commencing at a peripheral edge of the working surface and extending away from the working surface toward the interface but spaced therefrom by a portion of the region rich in catalyzing material.

12. (Previously presented) The polycrystalline diamond abrasive element according to claim 11, wherein the region lean in catalyzing material further comprises at least another portion lean in catalyzing material adjacent the working surface.

13. (Previously presented) The polycrystalline diamond abrasive element according to claim 12, wherein the substantially annular portion of the region lean in catalyzing material extends into the polycrystalline diamond layer from at least one of the peripheral surface and the working surface to a depth of about 30 μ m to about 500 μ m.

14. (Previously presented) The polycrystalline diamond abrasive element according to claim 11, wherein the substantially annular portion of the region lean in catalyzing material extends from the working surface toward the interface to a depth of at least half the overall thickness of the polycrystalline diamond layer, but stops short of the interface by at least about 500 μ m.

15. (Previously presented) The polycrystalline diamond abrasive element according to claim 11, wherein the region rich in catalyzing material itself comprises a plurality of layers rich in catalyzing material, which layers rich in catalyzing material differ in at least one of average particle size and chemical composition.

16. (Previously presented) The polycrystalline diamond abrasive element according to claim 11, configured as a cutting element.

17. (Previously presented) The polycrystalline diamond abrasive element according to claim 16, wherein the cutting element is secured to a drill bit.

18. (Previously presented) The polycrystalline diamond abrasive element according to claim 11, wherein the substrate is a cemented carbide substrate.

19. (Previously presented) A polycrystalline diamond abrasive element, comprising a polycrystalline diamond layer bonded to a substrate along an interface, the polycrystalline diamond layer having a working surface opposite the interface and an outer peripheral surface extending between the working surface and the interface, the polycrystalline diamond layer consisting of a region lean in catalyzing material adjacent at least a portion of the working surface, another, substantially annular region lean in catalyzing material adjacent the peripheral surface, contiguous with the region, extending away from the working surface toward the interface and spaced from the interface, and a region rich in catalyzing material in contact with the substrate along the interface and including a portion located between the another, substantially annular region lean in catalyzing material and the interface.

20. (Previously presented) The polycrystalline diamond abrasive element according to claim 19, wherein at least one of the regions lean in catalyzing material extends into the polycrystalline diamond layer from at least one of the peripheral surface and the working surface to a depth of about 30 μ m to about 500 μ m.

21. (Previously presented) The polycrystalline diamond abrasive element according to claim 19, wherein the another, substantially annular region extends from the working surface toward the interface to a depth of at least half the overall thickness of the polycrystalline diamond layer, but stops short of the interface by at least about 500 μ m.

22. (Canceled)

23. (Currently amended) The polycrystalline diamond abrasive element according to claim 19, wherein the region rich in ~~catalysing~~ catalyzing material itself comprises a plurality of regions rich in catalyzing material, which regions rich in catalyzing material differ in at least one of average particle size and chemical composition.

24. (Previously presented) The polycrystalline diamond abrasive element according to claim 19, configured as a cutting element.

25. (Previously presented) The polycrystalline diamond abrasive element according to claim 24, wherein the cutting element is secured to a drill bit.

26. (Previously presented) The polycrystalline diamond abrasive element according to claim 19, wherein the substrate is a cemented carbide substrate.

27. (Currently amended) A polycrystalline diamond abrasive element, comprising a polycrystalline diamond layer bonded to a substrate along an interface, the polycrystalline diamond layer having a working surface opposite the interface and an outer peripheral surface extending between the working surface and the interface, the polycrystalline diamond abrasive layer consisting of a region rich in catalyzing material and a region lean in catalyzing material adjacent the peripheral surface having a substantially annular portion extending from adjacent the working surface toward the interface, the substantially annular portion located between a portion of the region rich in catalyzing material and the peripheral surface, another portion of the ~~at least one~~ region rich in catalyzing material being located adjacent the peripheral surface and between the substantially annular region and the interface.

28. (Previously presented) The polycrystalline diamond abrasive element according to claim 27, wherein the region lean in catalyzing material includes another portion adjacent the working surface.

29. (Previously presented) The polycrystalline diamond abrasive element according to claim 28, wherein the substantially annular portion and the another portion of the region lean in catalyzing material are substantially contiguous.

30. (Previously presented) The polycrystalline diamond abrasive element according to claim 28, wherein the substantially annular portion of the region lean in catalyzing material extends from adjacent the working surface toward the interface a distance greater than a depth of the another region lean in catalyzing material from the working surface.

31. (Previously presented) The polycrystalline diamond abrasive element according to claim 27, wherein the substantially annular portion of the region lean in catalyzing material extends into the polycrystalline diamond layer from the peripheral surface to a depth of about 30 μ m to about 500 μ m.

32. (Previously presented) The polycrystalline diamond abrasive element according to claim 27, wherein the substantially annular portion of the region lean in catalyzing material extends from the working surface toward the interface to a depth of at least half the overall thickness of the polycrystalline diamond layer, but stops short of the interface by at least about 500 μ m.

33. (Previously presented) The polycrystalline diamond abrasive element according to claim 27, wherein the catalyzing material is present as a sintering agent in the manufacture of the polycrystalline diamond layer.

34. (Previously presented) The polycrystalline diamond abrasive element according to claim 27, wherein the region rich in catalyzing material comprises a plurality of layers, which layers differ in average particle size or chemical composition.

35. (Previously presented) The polycrystalline diamond abrasive element according to claim 27, wherein the polycrystalline diamond element is a cutting element.

36. (Previously presented) The polycrystalline diamond abrasive element according to claim 27, wherein the substrate is a cemented carbide substrate.

37. (Previously presented) The polycrystalline diamond abrasive element according to claim 35, wherein the cutting element is secured to a drill bit.

38. (Previously presented) The polycrystalline diamond abrasive element according to claim 8, wherein the cutting element is secured to a drill bit.